

Carnivores of Syria

Marco Masseti

Department of Evolutionistic Biology “Leo Pardi” of the University of Florence, Italy

Corresponding author: *Marco Masseti* (marco.masseti@unifi.it)

Academic editors: *E. Neubert, Z. Amr* | Received 14 April 2009 | Accepted 29 July 2009 | Published 28 December 2009

Citation: Masseti, M (2009) Carnivores of Syria. In: Neubert E, Amr Z, Taiti S, Gümüs B (Eds) Animal Biodiversity in the Middle East. Proceedings of the First Middle Eastern Biodiversity Congress, Aqaba, Jordan, 20–23 October 2008. ZooKeys 31: 229–252. doi: 10.3897/zookeys.31.170

Abstract

The aim of this research is to outline the local occurrence and recent distribution of carnivores in Syria (Syrian Arab Republic) in order to offer a starting point for future studies. The species of large dimensions, such as the Asiatic lion, the Caspian tiger, the Asiatic cheetah, and the Syrian brown bear, became extinct in historical times, the last leopard being reputed to have been killed in 1963 on the Alauwit Mountains (Al Nusyriain Mountains). The checklist of the extant Syrian carnivores amounts to 15 species, which are essentially referable to 4 canids, 5 mustelids, 4 felids – the sand cat having been reported only recently for the first time – one hyaenid, and one herpestid. The occurrence of the Blandford fox has yet to be confirmed. This paper is almost entirely the result of a series of field surveys carried out by the author mainly between 1989 and 1995, integrated by data from several subsequent reports and sightings by other authors.

Keywords

Carnivores, Syria, Near East.

Introduction

The geographical position of Syria (Syrian Arab Republic), in the land-bridge between Eurasia and Africa, displays a remarkable variation of bioclimatic and biogeographical conditions throughout its territories, allowing the coexistence of zoological elements of the Mediterranean and Boreal regions with Irano-Turanian and Saharo-Sindian *taxa* (cf. Atallah 1977, 1978; Masseti 2004; Serra et al. 2005). Within the mammalian taxonomic group, this appears particularly evident for the carnivores, with several *taxa* of which having been reported from the Syrian territory over recent decades. However, with the exception of a very few species, possibly including the red fox, *Vulpes vulpes*

(Linnaeus, 1758), the majority of the surviving carnivores now appear to be in populations of low viability.

Unfortunately, large carnivores, such as the Asiatic lion, *Panthera leo persica* (Meyer, 1826), the Caspian tiger, *Panthera tigris virgata* (Illiger, 1815), the Asiatic cheetah, *Acinonyx jubatus venaticus* (Griffith, 1921), and the Syrian brown bear, *Ursus arctos syriacus* Hemprich & Ehrenberg, 1828, became extinct in historical times. According to Mouterde (1966), the lion was recorded along the Euphrates only up to the 12th century. The last known reports of cheetahs in the region are from the south-eastern desert during the years 1956–1957 (Masseti 1990). The last surviving individual may have been killed at the end of the 1950s in an area in the south between the Jordanian and Iraqi borders (AbuZinada et al. 2001). There is some archaeological evidence for the occurrence of tigers in the Amuq valley (Ellerman and Morrison-Scott 1951; Valino and Guazzo Albergoni 1978). Although previously located within Syria, boundary changes made during World War II now place the plain within Turkish Hatay (Yener and Wilkinson 2007). Here, tigers were reported up to the 1970s (Baytop 1974; Kock 1990). According to Kumerloeve (1956), Baytop (1973, 1974), and Corbet (1978), isolated populations of the species probably survived up to this time in the southern Caucasus and Eastern Asia Minor. The westernmost occurrence of this species is undoubtedly related to the heartland of the tiger in Transcaucasia (cf. Heptner and Sludskij 1980) and northern Iran (Misonne 1959; Lay 1967), since tigers appeared regularly at Tbilisi up to 1922, and in the upper Aras (Araxes) Valley (Mazak 1979). It is believed that brown bears inhabited Galilee only up to the end of the 19th century (Mendelsshon and Yom-Tov 1999), whereas they have been reported as still surviving (Simon 1969) in the mountains of Kurdistan, in northern and eastern Iraq and possibly also in northern Syria (Cowan 1972). Talbot (1960), for example, confirmed the existence of brown bears on the slopes of the Alawit Mountains (Al Nusyriain Mountains), north of Lattakia, in the 1960s (Harrison 1968; Harrison and Bates 1991). The official version is that the last Syrian bear was recorded in 1927, along the Nahal Al-Kabir, in the vicinity of Lattakia.

The Syrian mammalian fauna has been little studied to date and scientific publications are fairly scarce (cf. Masseti 2004). The decades of the 20th century and the years immediately following witnessed a moderate production of studies and scientific publications on the carnivores of Syria. Extant knowledge of them appears heterogeneous, the studies carried out up to now being referable to episodic research mostly in specific areas (Misonne 1957; Lehmann 1965; Kock et al. 1994), or to specialist investigations on taxonomy and systematics (Lehmann 1966), morphometrics (Kock and Kinzelbach 1982), genetics (Peshev Al-Hosseini 1989), and ecology and distribution (Carruthers 1909; Kumerloeve 1975; Uhrin et al. 2000). But, apart from the aforementioned papers by Kock and Kinzelbach (1982), Peshev and Al-Hosseini (1989) and Uhrin et al. (2000), as far as is presently known, no other research has been published on an individual Syrian species. The works of Harrison (1968), Gasperetti et al. (1985), and Harrison & Bates (1991), which deal with Syrian carnivores in the broader context of the fauna of Arabia, are also very important.

There are instead a larger number of studies on the carnivores of geographical regions adjacent to Syria, such as southern Turkey (Baytop 1973, 1974; Huş 1974; Borner 1977; Kasperek 1986, 1988; Ulrich and Riffel 1993; Özkurt et al. 1998; Özkurt et al. 1999; Masseti 2000a; Can 2004; Can and Togan 2004; Kasperek et al. 2004; Thol-Schmitz 2004; Giannartos et al. 2006, and others). Over the last twenty years there have been various studies on the local carnivores of Jordan which, from a biogeographical point of view, can be regarded as an extension of the Syrian desert. We should mention, *inter alia*, the works of Masseti (1990), Masseti and Covarelli (1991), Qumsiyeh et al. (1993), Bunaian et al. (1998), Rifai et al. (1999), Reuter et al. (2000), Abu Baker and Amr (2002), Bunaian et al. (2002), Abu Baker et al. (2003), Abu Baker et al. (2004), and Qarqaz et al. (2004). Israeli production on the subject is notably vast, I shall restrict myself to mentioning the important review that appears in Mendelsshon and Yom-Tov (1999). Iraq boasts a decidedly smaller number of specialist studies, in practise restricted to Hatt (1959), Mahdi and Georg (1969), and Kock (1990). Finally, there are also very few publications on the mammals of Lebanon, and almost all date to before the 1990s. Among which I should mention Lewis et al. (1968), and Serhal (1985). The results of a recent study on the distribution of the striped hyaena in Lebanon were published by Abi-Said and Marrouche (2007).

Materials and methods

This study is almost entirely the result of a series of field surveys carried out by the author in the territories of the Syrian Arab Republic, mainly between the years 1989 and 1995, integrated by data from several subsequent reports and sightings by other authors, such as Peshev and Al-Hosseini (1989), Kock et al. (1994), and Uhrin et al. (2000), or referring to original data communicated me by Petr Benda on the results of a biological expedition organised *inter alia* by the National Museum (Natural History) of Prague in 1998. The present research is based on personal observations, as well as on contacts with local institutions and individuals such as hunters and taxidermists. To avoid repetition, I do not indicate on the distribution maps data published prior to 1989.

In the course of this study the collections of the following museums were also examined:

PAM	Palmyra Archaeological Museum, Tadmor (=Palmyra), Syria
AFRI	Arab Institute of Forestry & Range, Lattakia, Syria
IBM	Idlib Museum, northwestern Syria (about 60 km south-west of Aleppo)
JNHM	Jordan Natural History Museum, Yarmouk University, Irbid, Jordan
BMNH	Natural History Museum, London
ZFMK	Museum Alexander König, Bonn,

as well as the materials available in several private Syrian zoological collections in Salamieh (south-east of Hama), Lattakia, Bab Janné (Slonfe, Lattakia), Basseet (Lattakia) and Damascus.

The examination of one such collection at Basamfasal, a suburb of Deir ez-Zor, was particularly important. This collection was gathered from the late 1980s on, and consisted of stuffed animals that were shot in the environs of the town, along the Euphrates valley and in the Eastern Syrian steppe (Masseti 2001). They were displayed in the house of Mr. Zuheir Karkutli, also known as *Abu Rabi*^c, “father of the spring”, after the name of his son, *Rabi*^c (= “spring”). Comprising hundreds of specimens, dominated by birds (71 species) but also featuring a fair number of mammals (27 species) and a few reptiles (4 species), the Basamfasal collection was representative of the wildlife repertoire of the part of northern Syrian Mesopotamia known as the “Djazireh”, between the valley of the Euphrates and the Khabur river. The collection was destroyed in 1994, for reasons which are not altogether clear. The stuffed specimens may possibly have been destroyed as a result of conservation problems. Some of the living animals were, instead, transferred to the small zoological garden in the urban settlement of Douma, at the north-eastern corner of the oasis of Damascus, also called Ghouta (cf. Bianquis 1989).

The aim of this work is to outline a mapping of the present occurrence of wild carnivores in Syria in order to offer a starting point for future studies.

Annotated checklist

Golden jackal, *Canis aureus* Linnaeus, 1758

Fig. 1

This is the only species of jackal distributed outside Africa, in the Near East and Middle East (Ellermann and Morrison-Scott 1951; Kumerloeve 1967; Hosey 1982; Francis 2008), and in south-western Europe as far as north-eastern Italy (Lapini and Perco 1988a and 1988b; Lapini et al. 1993). Golden jackals are regarded as fairly common in many areas of the western Near East where they are often persecuted as pests (Frankenberg 1991; Mendelssohn and Yom-Tov 1999).

Three stuffed specimens and one living individual were in the collection of “Abu Rabieh” at Basamfasal, captured in the surroundings (cf. Masseti 2001); one stuffed adult specimen was conserved in the museum of the town of Idlib, presumably captured in the vicinity; another stuffed adult female was observed in the private collection of Ali Nazer, in the town of Salamieh, killed in 1984 at As Sa’an. According to Ali Nazer, jackals were very common in the region of Al Bilaas and Tadmor. Jackals were also regarded as common at Bab Janné, in the Alawit Mountains (Abu Mazen, Bab Janné, pers. comm. 1994). Several stuffed specimens were observed in the shop of a taxidermist of Lattakia, and three live specimens in the zoological garden of Douma (Damascus), originating from the region of Deir ez-Zor. Serra et al. (2003) reported the species from the desert of Palmyra.

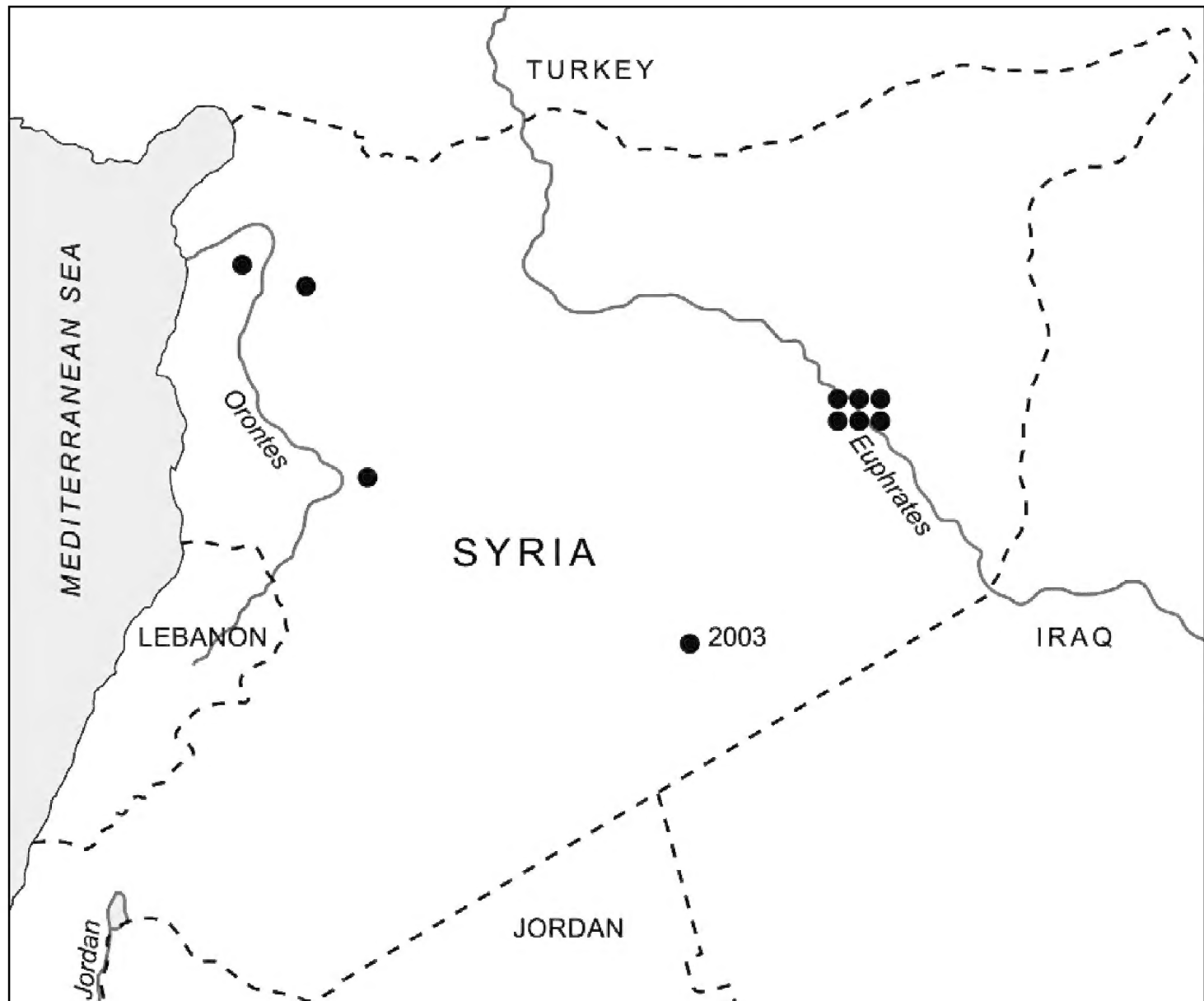


Figure 1. Golden jackal, *Canis aureus* Linnaeus, 1758.

Wolf, *Canis lupus* Linnaeus, 1758

Fig. 2

This is the last carnivore of large dimensions still dispersed in the region, albeit seriously threatened with extinction (cf. Shalmon 2004). In the course of this study two stuffed specimens were observed in the collection of the Palmyra Archaeological Museum; according to the manager of the museum, Ali Tahr (pers. comm. 1994), they were captured in the vicinity between 1970 and 1975. The adult stuffed specimen in the Basamfasal collection was hunted in the area of Jabal Bishri, between Raqqa and Deir-ez-Zor (cf. Masseti 2001); it appeared not to be pure-blooded but more likely the result of a wolf-dog crossing. According to F. Al-Yassine (1994, pers. comm.), wolves were present but rare in the mountains of Shoëh and north of Ifreen, whereas Abu Mazen (1994, pers. comm.) claimed they were also present in the Alawit Mountains (Bab Janné). In April 1994, three live individuals were observed in the zoological garden at Douma, originating respectively from Jabal Deir ez-Zor, Mayadin and Abu Kamal. At that time, the species appeared to be still dispersed in eastern Syria.

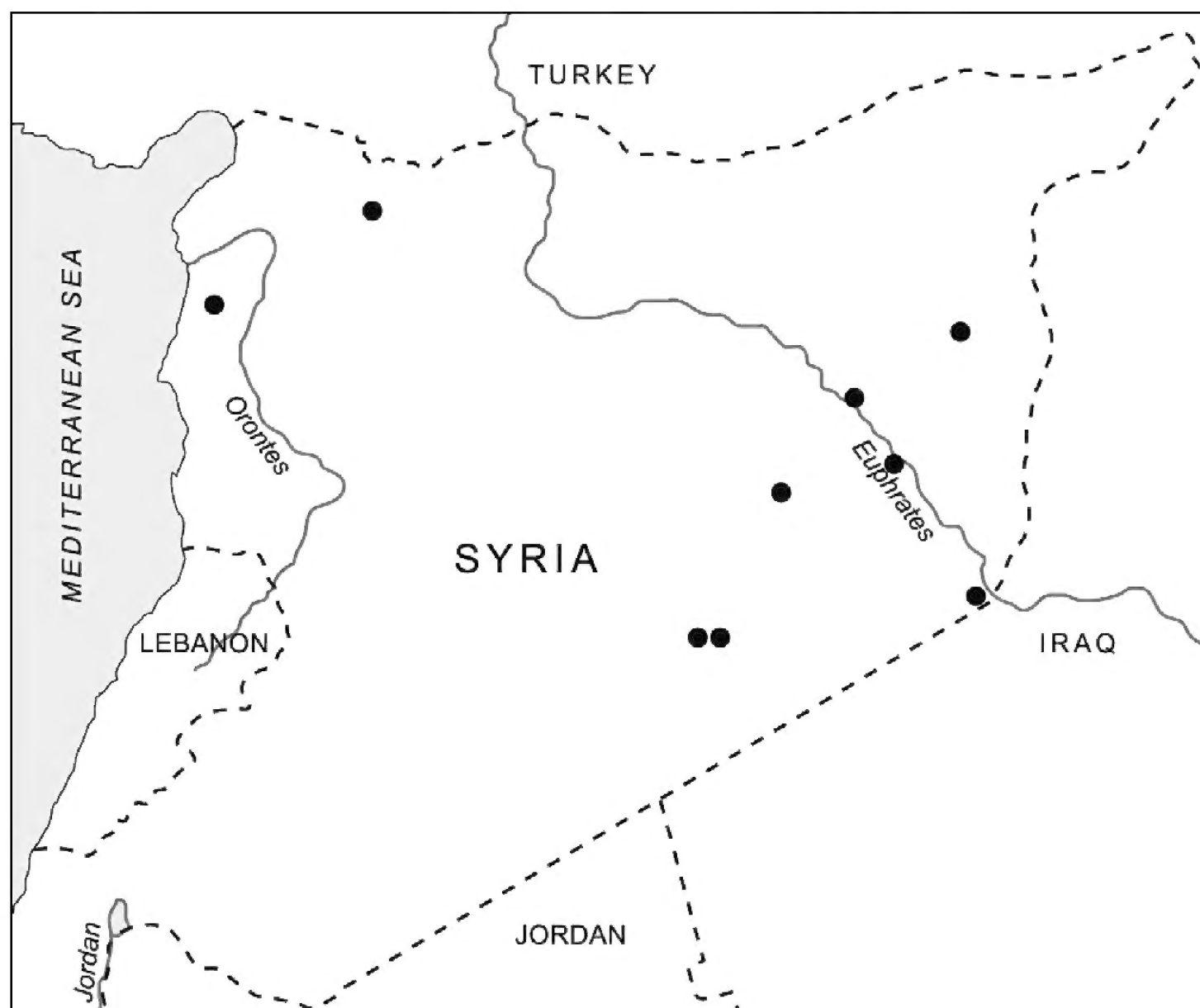


Figure 2. Wolf, *Canis lupus* Linnaeus, 1758.

Red fox, *Vulpes vulpes* (Linnaeus, 1758)

Fig. 3

One stuffed adult specimen from the Lattakia district was observed in the collection of the Department of Animal Production of the University of Lattakia; three stuffed specimens in the collections of the Palmyra Archaeological Museum, Tadmor; the Basamfasal collection comprised two live individuals and four stuffed adult specimens, captured in the environs of Deir-ez-Zor; one stuffed adult specimen was housed in the collections of the museum of Idlib, presumably captured in the surroundings; three stuffed adult specimens, that had been captured in the vicinity, were observed in the house of the taxidermist Mohammed Al Salie in the village of Salamieh; a number of stuffed specimens from all over Syria in a taxidermist's shop in Lattakia; two live specimens in the zoological garden of Douma, Damascus, originating from the region of Deir ez-Zor, and finally 23 stuffed specimens on sale in the airport of Damascus, probably captured in the Ghouta in 1992. All the above specimens were characterised by a pale colour phenotype. According to Abu Mazen (1994, pers. comm.), many red foxes were present in the area of Bab Janné, Alawit Mountains. Kock et al. (1994)

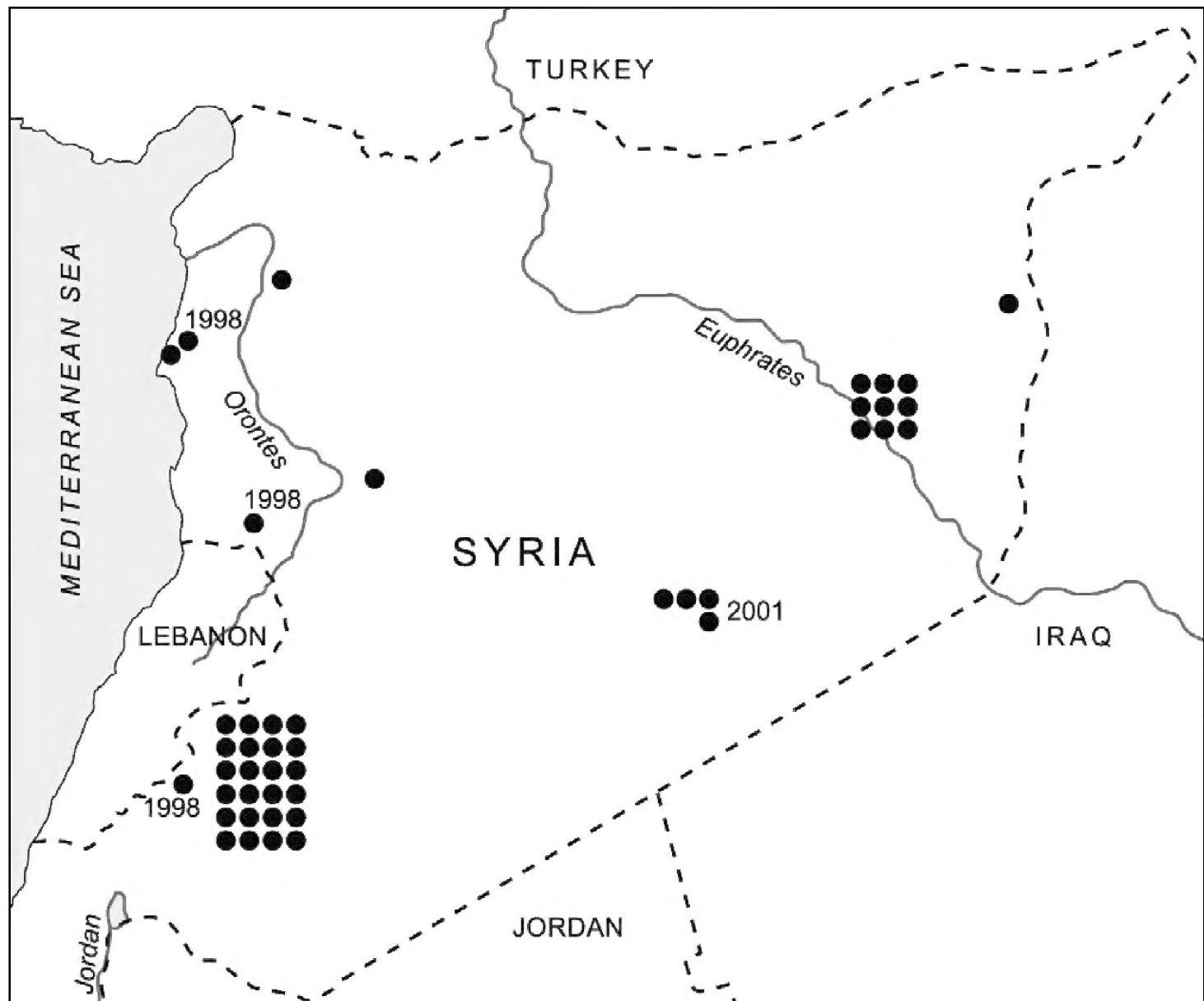


Figure 3. Red fox, *Vulpes vulpes* Linnaeus, 1758.

reported one specimen of this species from Tall ash-Shaikh Hamad, along the river Khabur (north-eastern Syria). In June 1998, two individuals were observed respectively in Burqash, and 5 km NE of Slonfeh; a freshly shot specimen was found 5 km W of Ash'meish on 1 July 1998 (Pert Benda 2009: pers. comm.)

At *Al talila* reserve, about 25 km SE of Tadmor (= Palmyra), exploiting a combination of systematic and opportunistic sampling approaches, the red fox was detected and readily identified at night using optical instruments and camera traps in the period between May 2000 and December 2001 (Serra et al. 2007).

Ruppell's sand fox, *Vulpes rueppellii* (Schinz, 1825)

Fig. 4

Two stuffed specimens of this carnivore were observed in 1989, respectively in the Palmyra Archaeological Museum, and in the Basamfaal collection, both of them very likely killed in the vicinity (Masseti 2001). In 1998 one individual was seen in the ruins of Rasafa and a pair of mandibles were found in the excavations of Mari,

along the course of the Euphrates (Benda 2009: in litteris). Subsequently, the occurrence of the species was confirmed by a camera trapping campaign carried out in the protected desert area of *Al talila*, during the period May 2000 – December 2001 (Serra et al. 2007).

Weasel, *Mustela nivalis* (Schinz, 1825)

Fig. 4

In the Levant the distribution of this mustelid is restricted to the northern areas of the region, including Lebanon (Serhal 1985; Harrison and Bates 1991) and northern Syria (Masseti 1995). In Palestine, for example, the species does not exist at present (Dayan and Tchernov 1988; Dayan 1989). It has not been reported from the northern Arabian peninsula since the Early Bronze Age (Boessneck 1977; Dayan and Tchernov 1988). In the course of this research it was possible to examine only one stuffed specimen on display in the Idlib museum. Thus, this site can be regarded as one of the southernmost stations of the weasel in the south-western Near East.

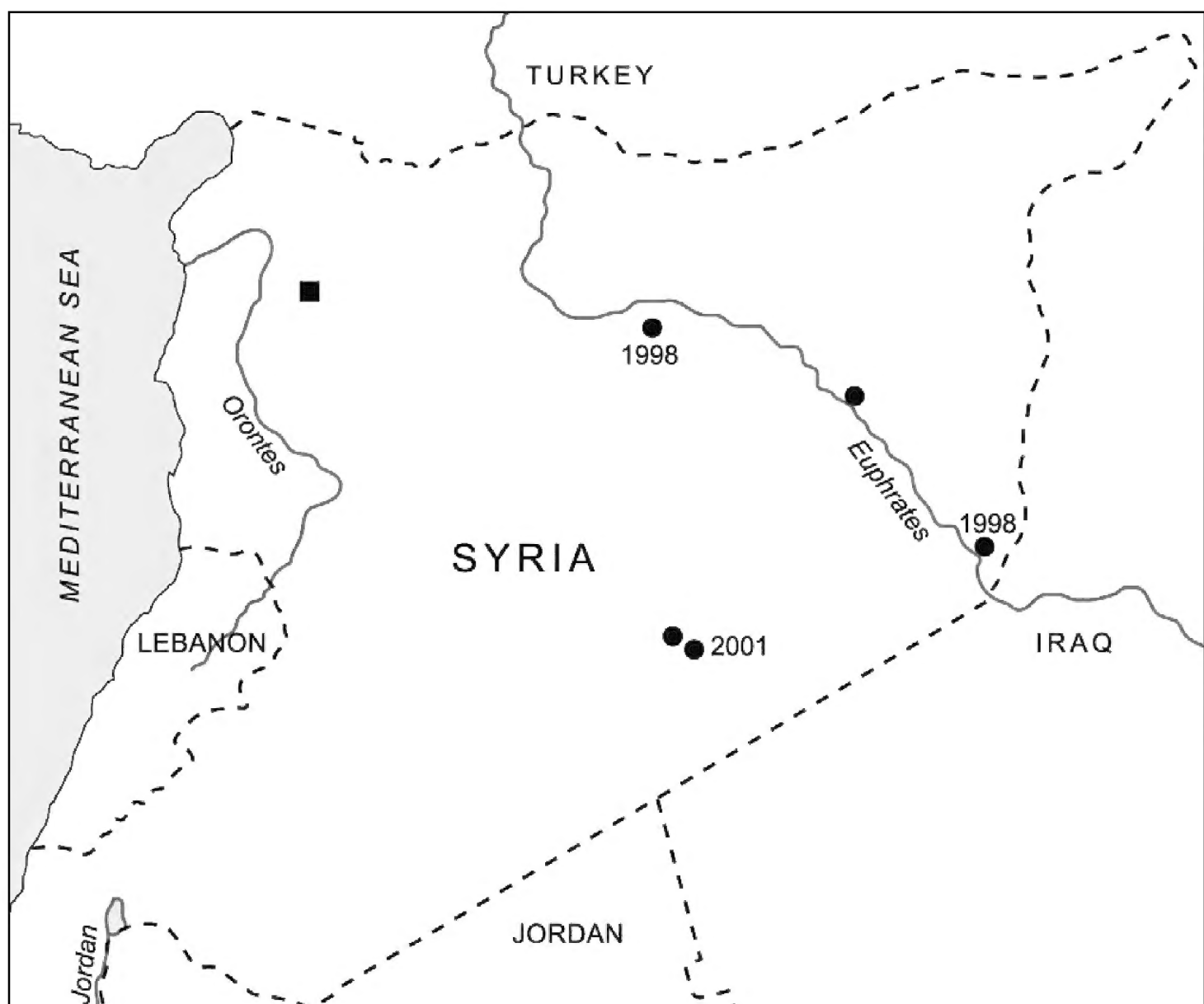


Figure 4. ● Rüppell's sand fox, *Vulpes rueppellii* (Schinz, 1825); ■ Weasel, *Mustela nivalis* L., 1766.

Beyond this Levantine distribution gap in the southern Levant, the species occurs again in Egypt, along the Nile delta and valley, with a population characterised by large body size and regarded as almost completely commensal with man (Osborn and Helmy 1980).

Marbled polecat, *Vormela peregusna* (Gueldenstaedt, 1770)

Fig. 5

Peshev and Al-Hosseini (1989) reported two males of this species, captured in the De-
raa district. In the course of the present study, between 1989 and 1995, two stuffed
specimens were observed respectively in the Palmyra Archaeological Museum, and in
the Idlib museum, and another two in the house of the taxidermist Mohammed Al
Salie in the village of Salamieh, captured in the vicinity; three live individuals were
kept at Basamfasal. Rifai et al. (1999) noted that the population of marbled polecats
had increased and become noticeable in north-western Jordan, even along the border
with Syria.

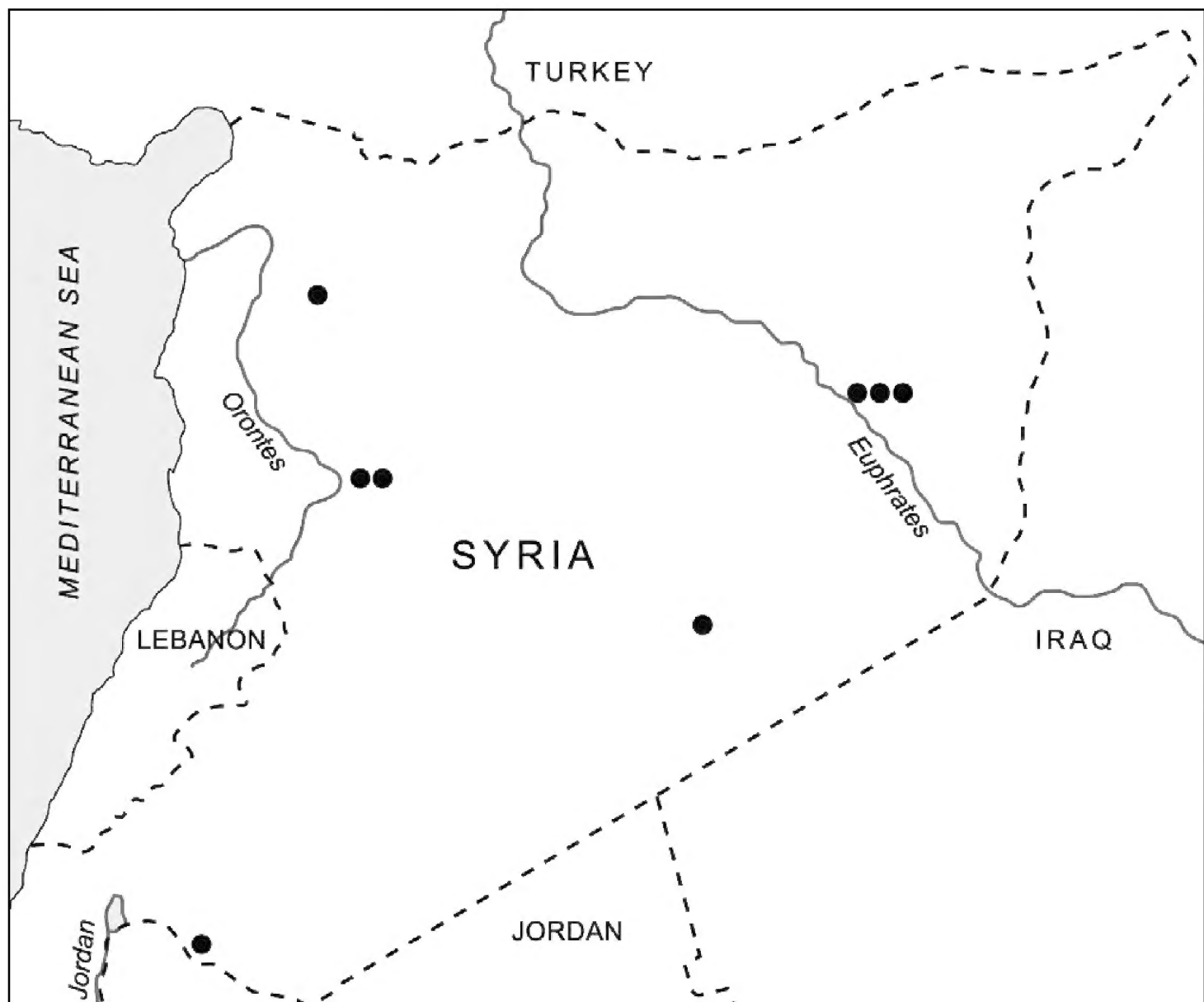


Figure 5. Marbled polecat, *Vormela peregusna* (Gueldenstaedt, 1770).

Beech marten or stone marten, *Martes foina* (Erxleben, 1777)

Fig. 6

In the western Near East, the range of the stone marten comprises the whole of Anatolia and the Levant, although not further south than the latitude of the Dead Sea (Harrison and Bates 1991; Mendelssohn and Yom Tov 1999). It is predominantly dispersed in the Levantine mountainous part of the Mediterranean region, with some penetration of semi-desert areas. The cliffs, trees and dense vegetation of the oasis, such as the oasis of Damascus (Ghouta), also appear to represent suitable habitats for the species. In the course of this research, in 1992, only two stuffed specimens were observed, on sale in the airport of Damascus and probably captured in the Ghouta. Both of them were characterised by a white throat patch divided by a median blackish-brown band, as in the Syrian subspecies *Martes foina syriaca* Nerhring, 1902, dispersed in south-western Asia (cf. Harrison 1968). Analogous phenotype pattern are also characteristic of the Cretan marten, *M. foina bunites* (Bate 1906) (cf. Niethammer and Niethammer 1967; Ragni et al. 1999), and of several populations of the Eastern Aegean islands (cf. Masseti 2002).



Figure 6. Beech marten or Stone marten, *Martes foina* (Erxleben, 1777).

European badger, *Meles meles* (Linnaeus, 1758)

Fig. 7

A record of this species is available in Kock and Kinzelbach (1982) from 20 km south of Tartus. Between 1989 and 1994, several stuffed specimens were observed in the Palmyra Archaeological Museum, the Idlib museum, the collection of the Department of Animal Production of the University of Lattakia, at Basamfasal, and in the house of the taxidermist Mohammed Al Salie at Salamieh. All these badgers were captured in the vicinity of the aforementioned sites; one live individual, characterised by a very light coat colour, was examined in the zoological garden of Douma (Damascus area). In June 1998, two live individuals and several burrowing sites were observed in Burqash (Pert Benda 2009: pers. comm.).

As noted by Abu Baker and Amr (2002) for Jordan, the relative scarcity of the species in Syria might be explained by the geographical position of both countries at the edge of its distribution range.

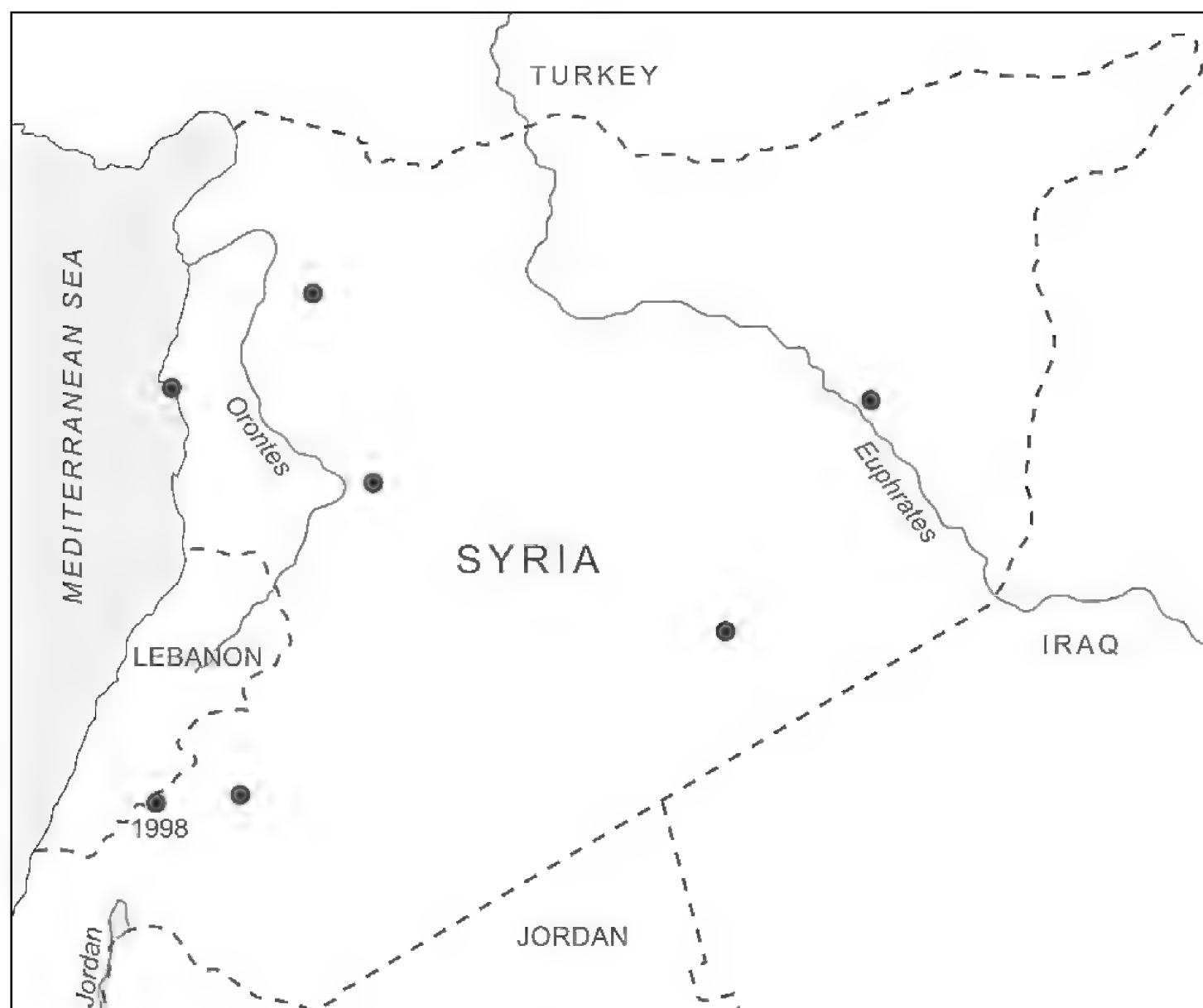


Figure 7. Badger, *Meles meles* (Linnaeus, 1758).

Otter, *Lutra lutra* (Linnaeus, 1758)

Fig. 8

Two stuffed specimens (one adult and one subadult), captured in the surroundings, were examined in the Basamfasal collection (cf. Masseti 2001, 2004). According to Abu Rabieh (1994, pers. comm.), there were numerous specimens in the Euphrates from Deir ez-Zor up to Abu Kamal (at the Iraqi border), Al Mayaddin and Doura Europos, but not in the north-westernmost area of Raqqa. Kock et al. (1994) reported the occurrence of this species from the Khabur valley, in north-eastern Syria. Additional data on the distribution of the species in eastern Syria were collected during a biological expedition organised *inter alia* by the National Museum (Natural History) of Prague in the period 11 June–7 July 1998. The occurrence of otters was confirmed from an island in the Euphrates at Doura Europos, from the site of Halabiyyeh and from Tell Sheikh, along the river Khabur, all sites in the district of Deir-ez-Zor (Uhrin et al. 2000). Data collected between 1989 and 1998 appear to indicate that a considerable population of otters is still present in this portion of eastern Syria, comprised between the Euphrates, its tributary the Khabur and the border with Iraq.

The carnivore is reported from the West Bank and northern Lebanon, and recent evidence is in favour of its presence in the western Bekaa valley and in the river Litani (Mounir R. Abi-Said 2008: pers. comm.). In neighbouring Israel otters are present in aquatic habitats and fishponds in the Hula Valley, in the northern Jordan River catchments and the Harod Valley (Dolev et al. 2006; Ben Ari et al. 2008); Guter et al. 2005; Guter et al. 2008). A single record from the Zvulun Valley and Carmel coastal area in 2000 suggests the existence of a remnant population along the coast, which may have become extinct (Dolev et al. 2006). New findings have indicated previously undocumented otter activity in the Golan Heights (Dolev et al. 2006).

Egyptian mongoose or ichneumon, *Herpestes ichneumon* (Linnaeus, 1758)

Fig. 8

All the specimens observed in the course of the present research originated from western Syria, having been captured in the region between Lattakia and the oasis of Damascus (Ghouta). One stuffed Egyptian mongoose from the latter area was examined in the collection of the Forest and Range Institute of Lattakia; several stuffed specimens were in the shop of a taxidermist of Lattakia, and another stuffed one – very likely captured in the Ghouta in 1992 – was on sale in a shop at Damascus airport. According to local hunters and taxidermists, in Syria mongooses do not frequent desert areas.

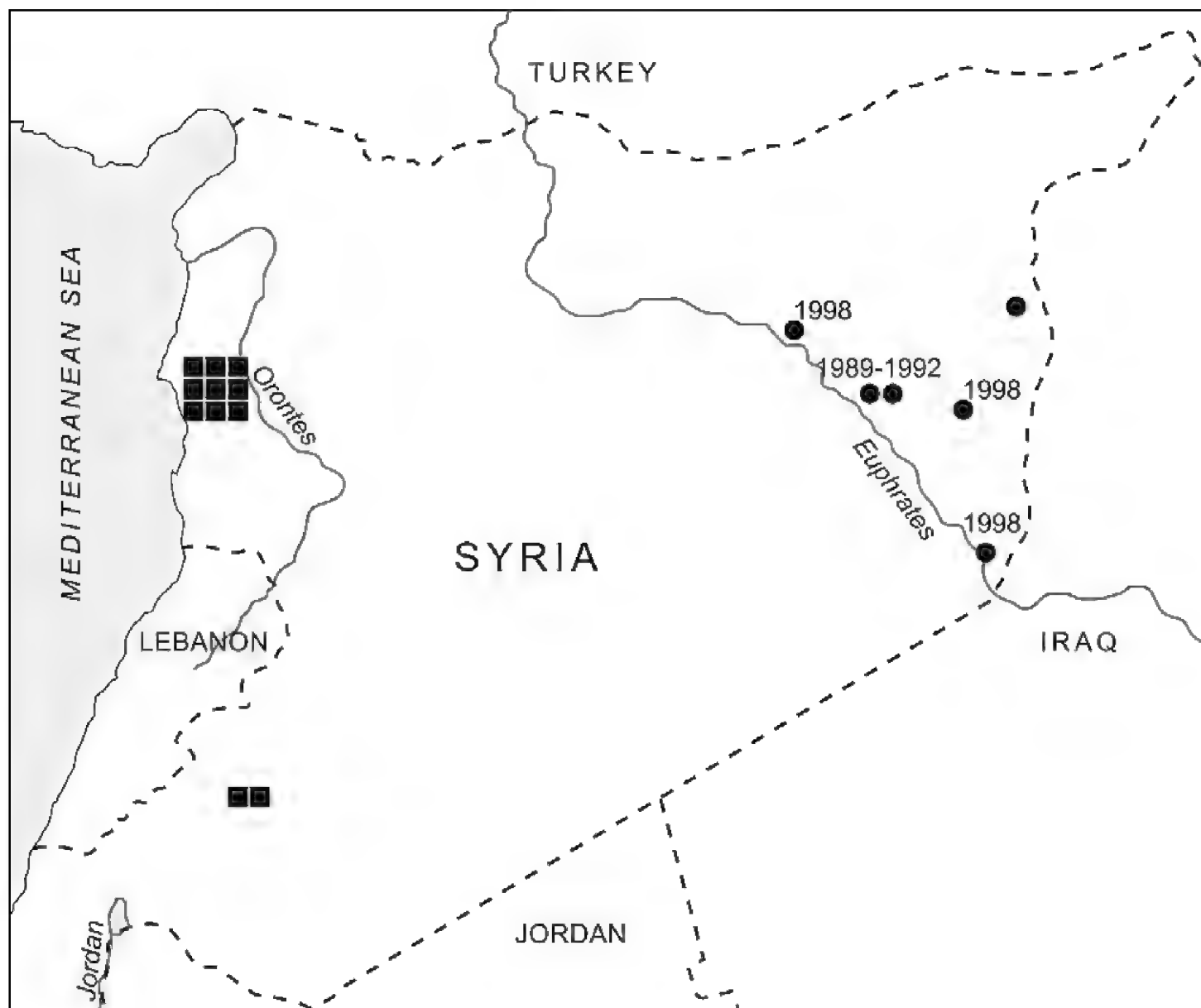


Figure 8. ● Otter, *Lutra lutra* (Linnaeus, 1758); ■ Egyptian mongoose or ichneumon, *Herpestes ichneumon* (Linnaeus, 1758).

Striped hyena, *Hyaena hyaena* (Linnaeus, 1758)

Fig. 9

Two stuffed adult specimens were examined in the collections of the Palmyra Archaeological Museum, Tadmor (PAM), which according to Ali Tahr (pers. comm. 1994) were captured in the surrounding area between 1970 and 1975; another one, again killed in the region of Palmyra, was present in the collection of the Forest and Range Institute of Lattakia; two other stuffed adult specimens were in the Basamfasal collection, both captured in the environs of Deir-ex-Zor (cf. Masseti 2001). In 1994, a live adult individual, captured in the region of Deir ez-Zor, was housed in the zoological garden of Douma, near Damascus.

Local people claim that there are very few hyenas in the Alawit Mountains (Abu Mazen, Bab Janné, pers. comm. 1994). It seems possible that, as in Lebanon (Abi-Said and Marrouche 2007; Abi-Said et al. 2008), the species may even occasionally frequent urban areas.

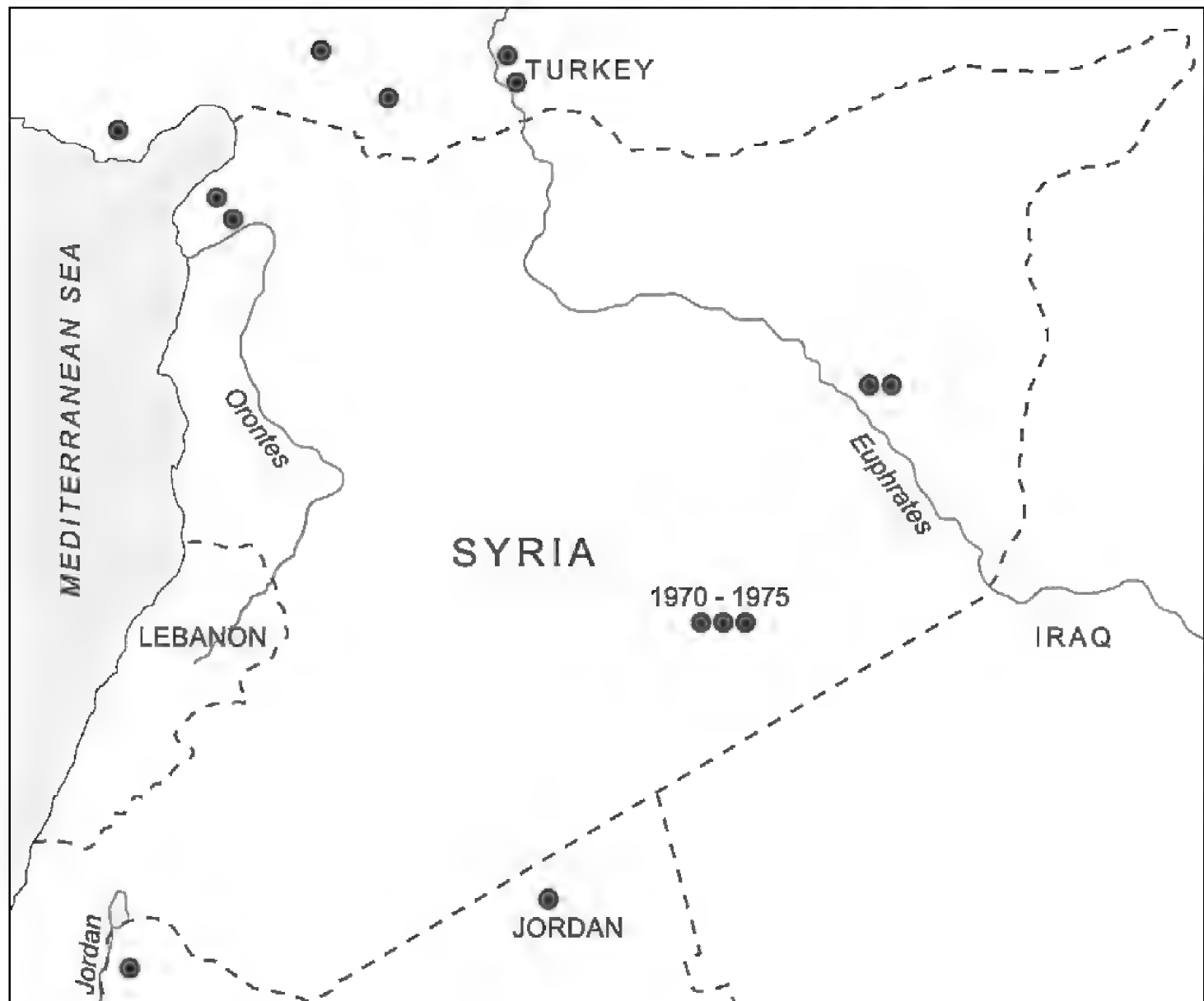


Figure 9. Striped hyaena, *Hyaena hyaena* (Linnaeus, 1758).

Wildcat, *Felis silvestris* Schreber, 1775

Fig. 10

In the course of this research it was possible to examine one adult stuffed specimen in the collections of the Palmyra Archaeological Museum (PAM), another in the house of the taxidermist Mohammed Al Salie in the village of Salamieh (which had been captured in the vicinity), and another which was on sale in a shop at Damascus airport, very likely captured in the surroundings in 1992. The occurrence of the wild cat in the protected desert area of *Al talila*, Tadmor (= Palmyra) was confirmed in 2001 by the results of a camera trapping campaign carried out by Serra et al. (2007).

Jungle cat, *Felis chaus* Gueldenstaedt, 1776

Fig. 11

The four stuffed adult specimens (three male and one female) of the Basamfasal collection were all captured in the environs of Deir-ez-Zor, along the shores of the

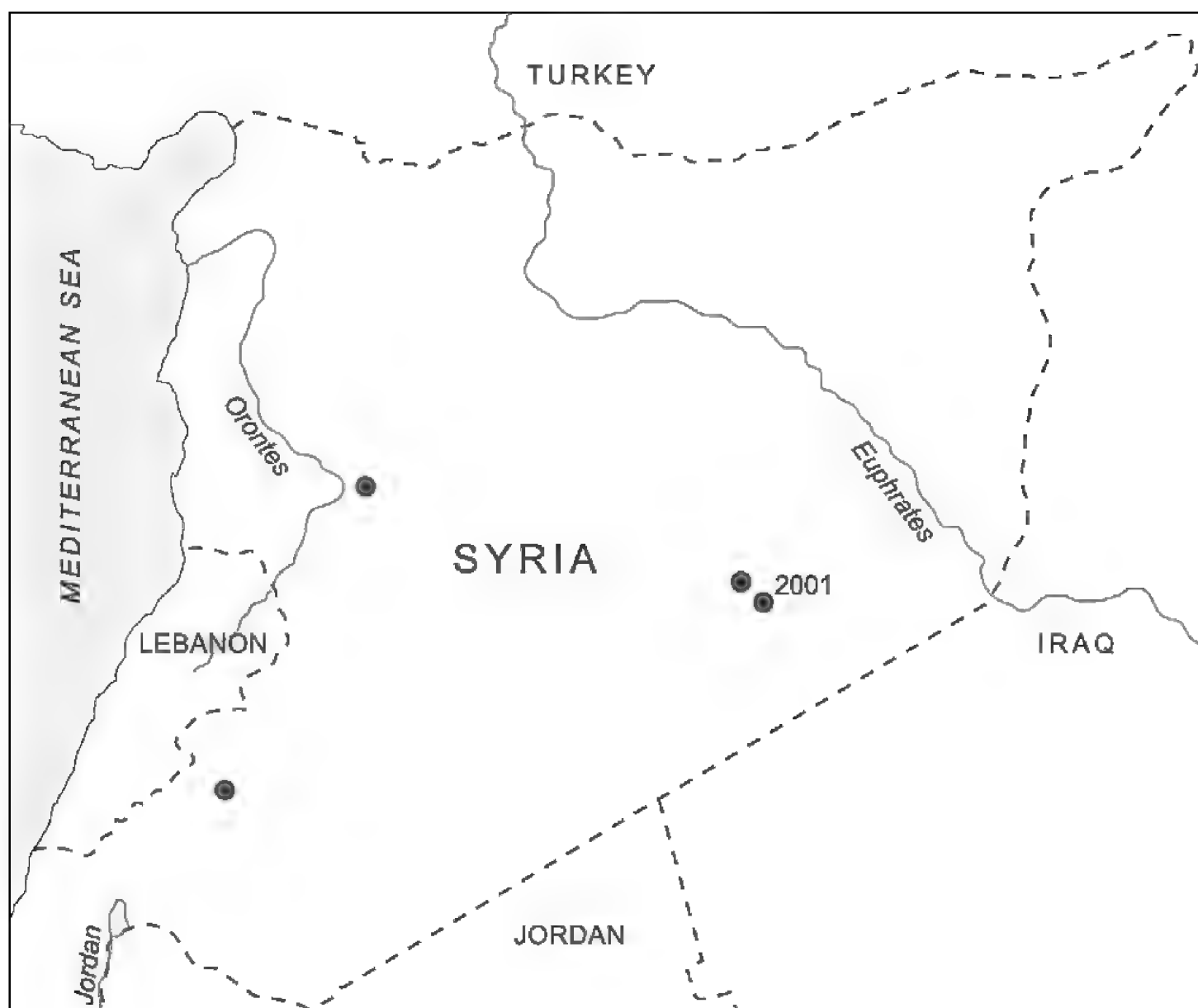


Figure 10. Wild cat, *Felis silvestris* Schreiber, 1775.

Euphrates river (cf. Masseti 2001 and 2004). Another stuffed female, captured in 1988 at Damyeh Bridge, in Jordan, not far from the Syrian border (East Bank of the Jordan river, S. Wadi Zerka), was examined in the Natural History Museum of the Yarmouk University, at Irbid (see also Kock et al. 1993; Abu Baker et al. 2003).

According to the hunters of Deir-ez-Zor, the jungle cat is a species still quite widely dispersed along the riverine thickets of the middle Euphrates and the Khabur, where it is locally referred to as *el qut el barry* (= “wild cat”) and sometimes even *nimr al Furat* (= “leopard of the Euphrates”). As in this case, vernacular names used by locals and hunters may often lead to misunderstanding, and information acquired purely through interviews must be treated with great caution. There can, however, be no risk of such misunderstanding in the present work since it is based exclusively on tangible evidence.

No records documenting the occurrence of jungle cats in western Syria were found. In the course of this research it was possible to report the presence of this species only from the valleys of the Jordan and the Euphrates, but not from that of the Orontes river, despite the fact that the environmental conditions of some parts of this area –

with the exception, perhaps, of the excessively populated Al Ghab plain – could still be favourable to its survival.

Sand cat, *Felis margarita* Loche, 1858

Fig. 11

The occurrence of this species was unknown in Syria up to 2001, when it was reported for the first time during the camera trapping campaign carried out in the protected area of *Al talila*, Tadmor (= Palmyra) by Serra et al. (2007).

Caracal, *Caracal caracal* (Schreber, 1776)

Fig. 12

In the course of this research it was possible to examine only one stuffed specimen, still conserved in the collection of the Palmyra Archaeological Museum (PAM). According to Ali Tahr (pers. comm. 1994) it was captured locally between 1970 and 1980.

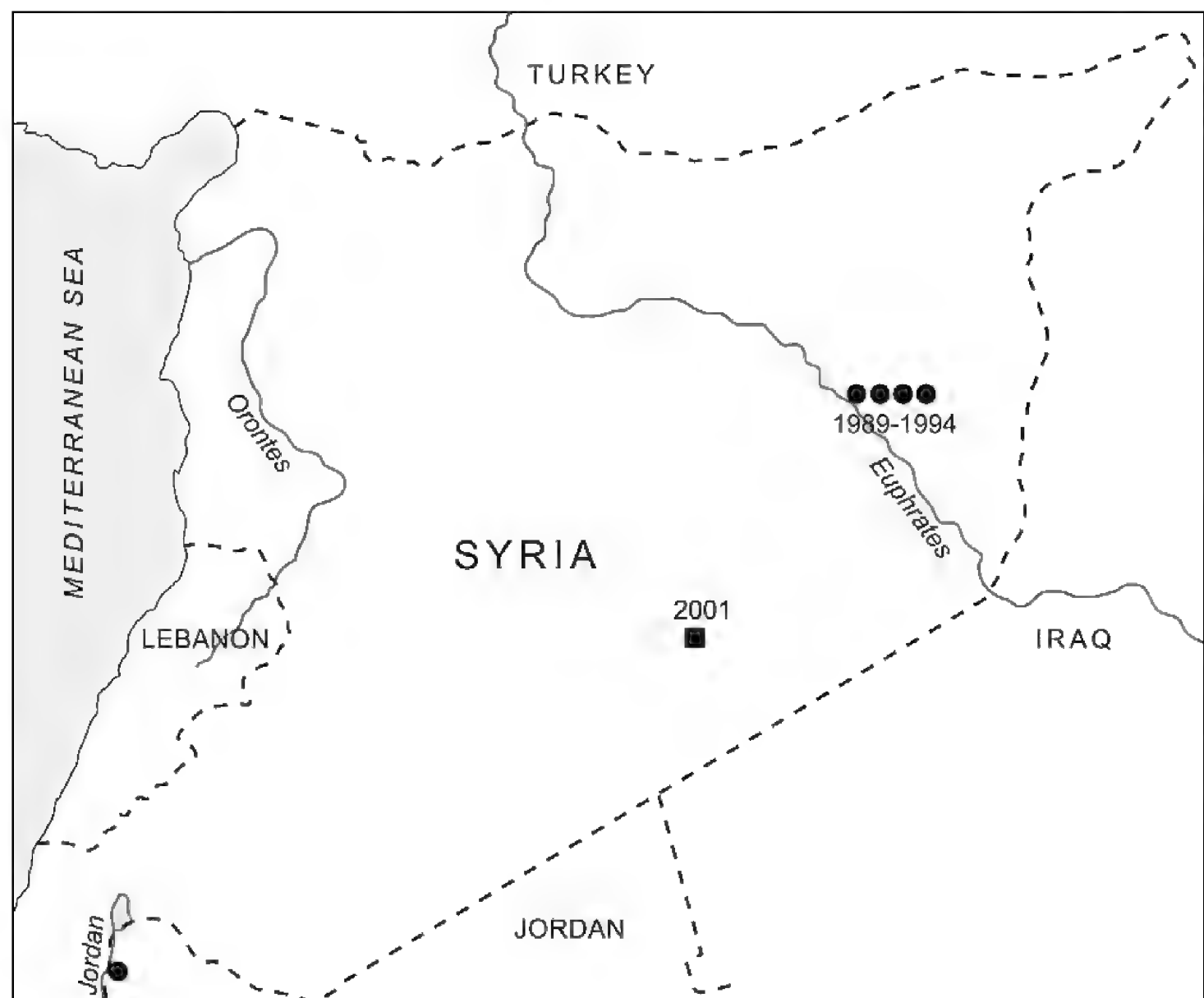


Figure 11. ● Jungle cat, *Felis chaus* Gueldenstaedt, 1776; ■ Sand cat, *Felis margarita* Loche, 1858.

Leopard, *Parthera pardus* (Linnaeus, 1758)

Fig. 12

As regards this felid, I was able to examine only the skin of an adult male killed at Nabi Yunes, Slonfeh, north-western Syria, in 1959 (ZFMK n. 64.1171, see Lehmann 1965), and to collect direct information about the disappearance of the last individuals from the same region. In the territories of northern Syria where the species was last reported, the Asia Minor leopard, *P. pardus tulliana* Valenciennes, 1856, is documented but it cannot be ruled out that the Arabian leopard, *P. pardus nimr* Hemprich & Ehrtenberg, 1833, may also have occurred in the desert regions of southern Syria. In the Levant, felids of the latter subspecies are still dispersed along the shores of the Dead Sea, and in the Negev desert (Mendelssohn 1989; Masseti 2000a; Shalmon 2004).

The last Syrian leopard is reputed to have been killed in 1963, in the vicinity of the village of Bab Jannè (= “*the gate of paradise*”), Slonfeh, on the Alawit Mountains, about 20 km from the Turkish border (Masetti 2000a). According to Ahmad Hamud of the Arab Forest and Range Institute of Lattakia (AFRI) (1994, pers. comm.), this specimen was killed by a forest guard of the Kharafan family in the forest of Cilician fir, *Abies cilicica* (Ant. et Klotzsch.) Carr. It is perhaps interesting to recall that the same

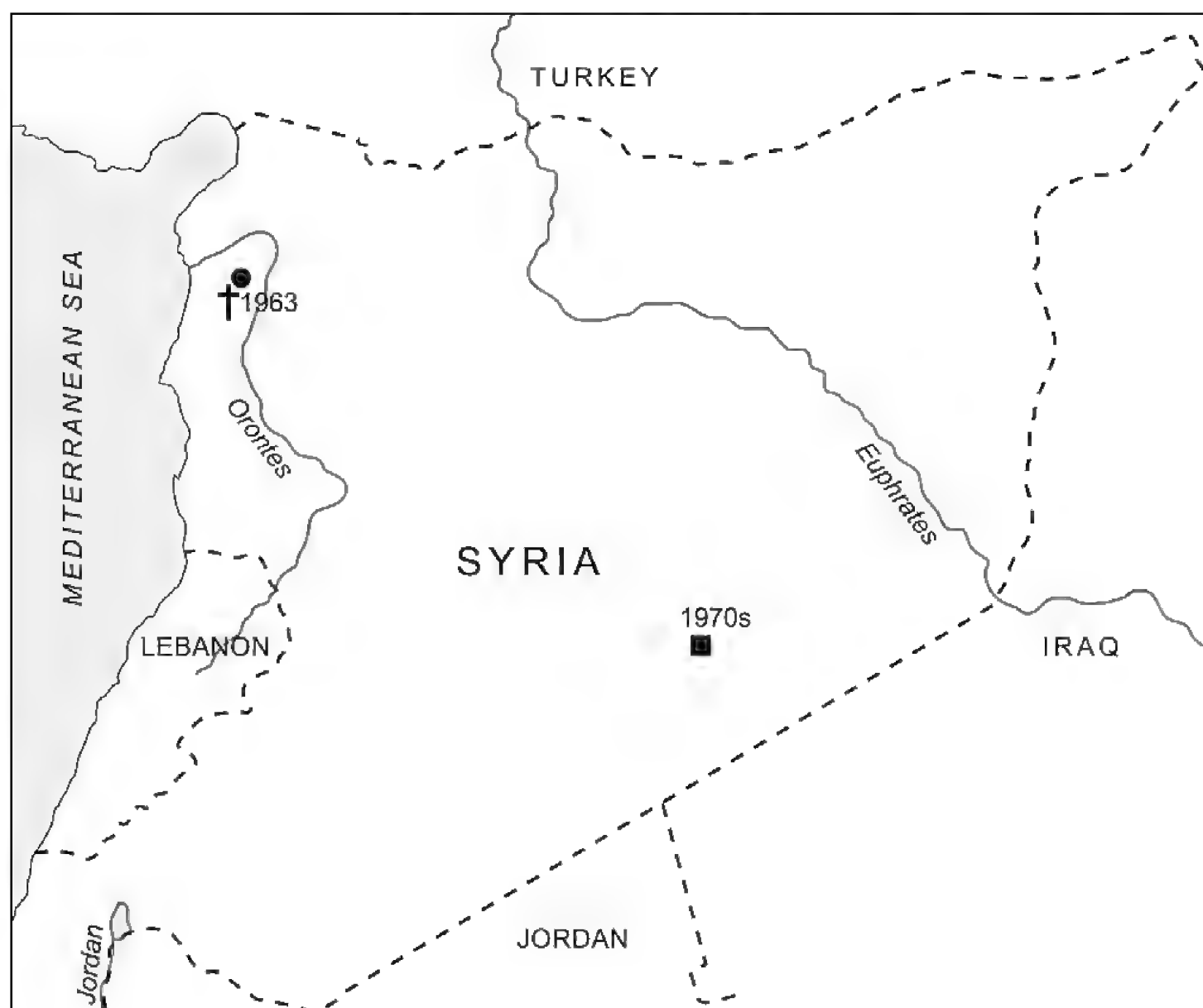


Figure 12. ● Leopard, *Panthera pardus* (Linnaeus, 1758); ■ Caracal, *Caracal caracal* (Schreiber, 1776).

area is also the last Syrian stronghold of the Kurdish roe deer, *Capreolus capreolus coxi* (Cheesman and Hinton 1923) (Masseti 2000b and 2004).

Remarks

In the course of this research it was possible to gather information on the current diffusion of 15 species of carnivore ranging in size from the wolf to the weasel, and not including the leopard.

It was, not possible to ascertain the occurrence of the Blandford fox, *Vulpes cana* Blandford, 1877, in Syria. The species was first recorded from the western Near East by Ilani (1983), and there is no previous information from this area. Today the western limit of its distribution is found in the southern Levant (Ginsberg and Macdonald 1990), where it inhabits the cliffs of the desert region from Aqaba up to the southern Jordan valley (Abu Baker et al. 2004; Shalmon 2004). However, as in the recent case of the sand cat in the Tadmor desert, it cannot be ruled out that further studies might document the presence of *Vulpes cana* in some of the rocky regions of Syria.

Nor was it possible to obtain any information about the ratel or honey badger, *Mellivora capensis* (Schreber, 1776), and we should recall that Kumerloeve (1975) too was unable to confirm the occurrence of this species from the Syrian territories. This is not to say, however, that the species is to be considered as completely absent from the country, otherwise it would be impossible to explain its fairly well-documented occurrence in neighbouring Jordan (see Amr, 2000), and Israel (see Shalmon, 2004). In this case too, it cannot be ruled out that the absence of specific sightings/reports for Syria could plausibly be attributed to the absence of targeted studies. Nor should we overlook the fact that in the entire Near East this species is frequently persecuted, being poisoned and hunted by bee farmers because it of the damage it causes to beehives (Shalmon, 2004). Nor was any information obtained about the occurrence of the smooth-coated Indian otter, *Lutrograle perspicillata* (Geoffroy, 1826) along the Syrian course of the Euphrates. In any case, however, the Near Eastern range of this Middle and Far Eastern species has been indicated as limited to southern Mesopotamia (Harrison 1968; Harrison and Bates 1991; Wozencraft 2005; Karami et al. 2008). The question of the possible presence of representatives of the *Lynx* genus in modern-day Syria remains open (see Aymerich 1991). One specimen characterised by the “pardina” phenotype was reported by Oriani (2000) from Tadmor (= Palmyra), who stated that: “*In Syria the species was not recorded prior to this work*”. Local hunters at Deir-ez-Zor refer to the occurrence of felids of this type on Jebel Ablasis and Jebel Abdul-Aziz, between the Balik and Khabur, rivers in the northern Djazireh, not far from the southern Turkish border. The same hunters declare that the main difference between this carnivore and the jungle cat consists in the fact that the former is maculated, with black spots. But other spotted felids did also occur in the past in this geographical area.

As a consequence of the extinction of the large felids and the progressive rarefaction of wolves, the majority of carnivores presently occurring in Syria are represented

by species that are fully adapted to living in areas influenced by man. Jackals, foxes, wild and jungle cats, mongooses and several mustelids are carnivores that humans have accepted as neighbours, while also being those that are most adept at avoiding contact with man (cf. Osborn and Helmy 1980; Ragni et al. 1999, Masseti 1995, 2002a). These carnivores are principally represented by generalist species which can thrive in a wide variety of environmental conditions and can exploit a range of different resources. Thus, they are able to vary their diets according to local and seasonal food availability. Frequently, for example, in the Mediterranean region the stone marten can be found behaving as a full commensal of man in urban areas (cf. Masseti 2002b) and it is also well known that weasels in the Nile delta are almost completely commensal with man (see Osborn and Helmy 1980).

Acknowledgements

In the course of this project I have been fortunate to have the help of many friends and colleagues. I should like to express special thanks to Mounir R. Abi-Said, American University of Beirut; F. Al-Yassine, Dép. de la Production Animale, Faculté d'Agronomie, Université d'Alep; Eliezer Frankenberg, Israel Nature and Parks Authority, Jerusalem; A. Hamud, Forest and Range Institute of Latakia; Amir Ibrahim Department of Animal Production, Faculty of Agriculture of the Tishreen University of Lattakia; Abu Mazen, Bab Janné; Zuheir Karkutli "Abu Rabieh", Basamfasal (Deir ez-Zor); Gianluca Serra, IUCN Bald Ibis project; Ali Thar, Palmyra Archaeological Museum, Tadmor; and S. Zahoueh, Faculté d'Agronomie, Université d'Alep.

I should like to express my special appreciation and gratitude to Zuhair S. Amr, Department of Biology of the Jordan University of Science and Technology (Irbid) for the enjoyable and stimulating discussions on the carnivores of Jordan and the Near East, and to Petr Benda, National Museum (Natural History) of Prague, for having put at my disposal the information on the carnivores he gathered in the course of a scientific expedition carried out in Syria in 1998.

References

- Abi-Said MR, Marrouche D (2007) Distribution of the Striped Hyaena (*Hyaena hyaena syriaca* Matius, 1882) (Carnivora: Hyaenidae) in urban and rural areas of Lebanon. *Zoology in the Middle East*, 42: 3–14.
- Abi-Said MR, Abi-Said DM, Sadek R (2008) Distribution of the striped hyaena, *Hyaena hyaena syriaca* Matius, 1882 (Carnivora: Hyaenidae) in urban and rural areas of Lebanon. In: Programme and abstracts of the First International Congress "Documenting, Analysing and Managing Biodiversity in the Middle East" (Aqaba, 20–23 October 2008). Senckenberg Forschungsinstitut und Museum/University of Jordan/Marine Science Station Aqaba. Jordan University Press, Amman: 38.

- Abu Baker M, Amr Z (2002) Status of the Eurasian Badger, *Meles meles*, in Jordan (Carnivora: Mustelidae). *Zoology in the Middle East*, 27: 13–20.
- Abu Baker M, Nassar K, Rifai L, Qarqaz M, Al-Melhim W, Amar Z (2003) On the current status and distribution of the Jungle Cat, *Felis chaus*, in Jordan (Mammalia: Carnivora). *Zoology in the Middle East*, 30: 5–10.
- Abu Baker MA, Al Omari K, Qarqaz M, Khaled Y, Yousef M, Amr ZS (2004) On the current status and distribution of Blanford's fox, *Vulpes cana* Blanford, 1877, in Jordan (Mammalia: Carnivora: Canidae). *Turkish Journal of Zoology*, 28: 1–6.
- Abu Zinada AH, Robinson ER, Nader AI, Al Wetaid YI (Eds) (2001) First Saudi Arabian National Report on the Convention on Biological Diversity. The National Commission for Wildlife Conservation and Development, Ryad: 131 pp.
- Amr ZS (2000) Jordan Country Study on Biological Diversity. Mammals of Jordan. United Nations Environment Programme/National Library, Amman: 100 pp.
- Atallah SI (1977) Mammals of the Eastern Mediterranean Region: their Ecology, Systematics and Zoogeographical Relationships. *Säugetierkundliche Mitteilungen*, 25: 241–360.
- Atallah SI (1978) Mammals of the Eastern Mediterranean Region: their Ecology, Systematics and Zoogeographical Relationships. Part 2. *Säugetierkundliche Mitteilungen*, 26: 1–50.
- Aymerich M (1991) Situación del lince boreal en Europa. *Quercus*, 61: 13–16.
- Baytop T (1973) Neue Beobachtung über die Verbreitung des kleinasiatischen Leoparden (*Panthera pardus tulliana*) in der Türkei. *Bonner zoologische Beiträge*, 24: 183–184.
- Baytop T (1974) La présence du vrai tigre, *Panthera tigris* (Linné 1758) en Turquie. *Säugetierkundliche Mitteilungen*, 22 (3): 254–256.
- Ben Ari Y, Nrakiss T, Kronfeld-Schor N, Bar-Gal GK, Saltz D, Dolev A (2008) The Eurasian otter (*Lutra lutra*) in the Southern Levant. In: Programme and abstracts of the First International Congress “Documenting, Analysing and Managing Biodiversity in the Middle East” (Aqaba, 20–23 October 2008). Senckenberg Forschungsinstitut und Museum/University of Jordan/Marine Science Station Aqaba. Jordan University Press, Amman: 52.
- Bianquis A-M (1989) La réforme agraire dans la Ghouta de Damas. Institut Français de Damas, Damascus: 152 pp.
- Boessneck J (1977) Funde von Mausswicsel, *Mustela riivalis* Linne, 1766, auf dem Tell Hesbon, Jordanien. *Säugetierkundliche Mitteilungen*, 25: 44–48.
- Borner M (1977) Leopards in Western Turkey. *Oryx*, July 1977: 26–30.
- Bunaian F, Mashaqbeh A, Yuosef M, Budairi A, Amr Z (1998) A new record of the Sand Cat, *Felis margarita* Loche, 1858, from Jordan. *Zoology in the Middle East*, 16: 5–7.
- Bunaian F, Hatough A, Ababaneh D, Mashaqbeh S, Yuosef M, Amr Z (2002) The Carnivores of the Northeastern Badia, Jordan. *Turkish Journal of Zoology*, 25: 19–25.
- Can ÖE (2004) Status, Conservation and management of Large Carnivores in Turkey. Convention on the Conservation of European Wildlife and Natural Habitats. Council of Europe, Strasbourg. T-PVS/Inf (2004) 8: 1–28.
- Can ÖE, Togan İ (2004) Status and management of brown bears in Turkey. *Ursus*, 15: 48–53.
- Carruthers D (1909) Big Game of Syria, Palestine and Sinai. *Field*, London, 114: 1135.
- Corbet GB (1978) The mammals of the Palearctic Region: a taxonomic review. British Museum (Natural History) and Cornell University Press, London and Ithaca: 314 pp.

- Cowan IM (1972) The status and conservation of bears (Ursidae) of the world-1970. Proceedings International Conference on Bear Research and Management, 2:343–367.
- Dayan T (1989) The succession and the community structure of the Carnivores of the Middle East in space and time. Thesis submitted for the degree PhD. Tel Aviv University, February 1989.
- Dayan T, Tchernov E (1988) On the first occurrence of the common weasel (*Mustela nivalis*) in the fossil record of Israel. Mammalia, 52: 165–168.
- Dolev A, Guter A, Saltz D, Kronfeld-Schor N (2006) Israel's otter (*Lutra lutra*) population, status and future conservation. In: Conroy JWH, Yoxon G, Gutleb AC, Ruiz-Olmo J (Eds): The return of the otter in Europe - where and how? Sabhal Mor Ostaig, Isle of Skye (30 June–5 July 2003). International Otter Survival Fund, Broadford, Isle of Skye (Scotland): 1–7.
- Ellerman JR, Morrison-Scott TCS (1951) Checklist of Palaearctic and Indian mammals 1758 to 1946. British Museum (Natural History), London: 810 pp.
- Francis CM (2008) Mammals of South-East Asia. New Holland Publishers, London: 392 pp.
- Frankenberg E (1991) Jackal (*Canis aureus*) census in the Judean lowland. Israel Journal of Zoology, 37: 173.
- Gasperetti J, Harrison DL, Büttiker W (1985) The Carnivora of Arabia. Fauna of Saudi Arabia, 7: 397–461.
- Giannatos G, Albayrak T, Erdogan A (2006) Status of the Caracal in Protected Areas in South-western Turkey. CAT News, 45: 23–24.
- Ginsberg JR, Macdonald DW (1990) Foxes, wolves, jackals and dogs: an action plan for the conservation of Canids. IUCN. Gland (Switzerland): 116 pp.
- Guter A, Dolev A, Saltz D, Kronfeld-Schor N (2005) Temporal and spatial influences on road mortality in otters: conservation implications. Israel Journal of Zoology, 51: 199–207.
- Guter A, Dolev A, Saltz D, Kronfeld-Schor N (2008) Using videotaping to validate the use of spraints as an index of Eurasian otter (*Lutra lutra*) activity. Ecological Indicators, 8: 462–465.
- Harrison DL (1968) The mammals of Arabia. Vol. II. Carnivora – Artiodactyla – Hyracoidea. Ernest Benn Ltd, London: 380 pp.
- Harrison DL, Bates PJJ (1991) The Mammals of Arabia. Harrison Zoological Museum, Sevenoaks (England): 354 pp.
- Hatt RT (1959) The Mammals of Iraq. Miscellaneous Publ. Mus. Zool. Univ. Mich., No 106: 1–113.
- Hepter VG, Sludskii AA (1980) Die Säugetiere der Sowjetunion, III: Raubtiere (Feloidea). Jena: 607 pp.
- Hosey GR (1982) The Bosphorous Land-Bridge and Mammal Distribution in Asia Minor and the Balkans. Säugetierkundliche Mitteilungen, 30: 53–62.
- Huş S (1974) Av hayvanlari ve avcilik. Orman Fakültesi, Istanbul Universitesi, Istanbul: 406 pp.
- Ilani G (1983) Blanford's fox, *Vulpes cana* Blanford, 1877, a new species from Israel. Israel Journal of Zoology, 32: 150.
- Karami M, Hutterer R, Benda P, Siahsarvie R, Kryštufek B (2008) Annotated check-list of the mammals of Iran. Lynx, n. s., 39 (1): 63–102.

- Kasperek M (1986) On a historical occurrence of the lion, *Panthera leo*, in Turkey. Zoology in the Middle East, 1: 9–10.
- Kasperek M (1988) On the occurrence of the Weasel, *Mustela nivalis*, in Turkey. Zoology in the Middle East, 2: 8–11.
- Kasperek M, Kasperek A, Gözcelioğlu B, Çolak E, Yiğit N (2004) On the status and distribution of the Striped Hyaena, *Hyaena hyaena*, in Turkey. Zoology in the Middle East, 33: 93–108.
- Kock D (1990) Historical record of a tiger, *Panthera tigris* (Linnaeus, 1758), in Iraq. Zoology in the Middle East, 4: 11–15.
- Kock D, Kinzelbach R (1982) Der Dachs, *Meles meles* (Linnaeus, 1758), in NW-Syrien. Zeitschrift für Säugetierk., 47: 316–317.
- Kock D, Krupp F, Schneider W (1994) Einige Säugetiere aus dem Nahr al-Khabur-Gebiet, NE-Syrien. Säugetierkundliche Mitteilungen, 35 (4): 177–183.
- Kock D, Shafie DM, Amr ZS (1993) The Jungle Cat, *Felis chaus* G黐ldenstaedt, 1776, in Jordan. Zeitschrift für Säugetierkunde, 58: 313–315.
- Kumerloeve H (1956) Zur Verbreitung des Leoparden (*Panthera pardus* L.) in Anatolien. Zool. Garten N.F., 22: 154–162.
- Kumerloeve H (1967) Die Säugetiere (Mammalia) der T黐rkei. Veröff. Zool. Staatssammlg. M黐nchen, 18: 69–158.
- Kumerloeve H (1975) Die Säugetiere (Mammalia) Syriens und des Libanon. Veröff. Zool. Staatssamml. M黐nchen, 18: 159–225.
- Lapini L (2003) *Canis aureus* (Linnaeus, 1758). Distribuzione geografica. In: Boitani L., Lovari S. and Vigna Taglianti A. (a cura di): Fauna d'Italia. Mammalia III. Carnivora - Ungulata. Edizioni Calderini de Il Sole 24 Ore Ed agricole S.r.l., Bologna: 52–54.
- Lapini L, Perco F (1988a) Lo sciacallo dorato (*Canis aureus* L., 1758), specie nuova per la fauna italiana (Mammalia, Carnivora, Canidae). Gortiana – Atti del Museo Friulano di Storia Naturale, 10: 213–227.
- Lapini L, Perco F (1988b) Primi dati sullo sciacallo dorato (*Canis aureus* L., 1758) in Italia (Mammalia, Carnivora, Canidae). Suppl. Ric. Biol. Selvaggina, 14: 627–628.
- Lapini L, Perco F, Benussi E (1993) Nuovi dati sullo sciacallo dorato (*Canis aureus* L., 1758) in Italia (Mammalia, Carnivora, Canidae). Gortiana – Atti del Museo Friulano di Storia Naturale, 14: 233–240.
- Lay DM (1967) A study of the mammals of Iran, resulting from the Street expedition of 1962–1963. Fieldiana (Zool.), 54: 1–282.
- Lehmann E von (1965) 黐ber die Säugetiere im Waldgebiet NW-Syriens. Sitzungsberichte der Gesellschaft Naturforschender Freunde zu Berlin (N.F.), 5 (1): 22–38.
- Lehmann E von (1966) Taxonomische Bemerkungen zur Säugetierausbeute der Kumerloeveschen Orientreisen 1953–1965. Zoologische Beiträge, 12 (2) : 251–317.
- Lewis RI, Lewis JH, Atallah SI (1968) A Review of Lebanese Mammals. Carnivora, Pinnipedia, Hyracoidea and Artiodactyla. Journal of Zoology, 154: 517–531.
- Mahdi N, Georg PV (1969) A systematic list of the vertebrates of Iraq. University of Bagdad. Iraq Natural History Museum Publication, 26: 1–104.
- Masseti M (1990) Fauna of Southern Jordan: notes on 22 endangered or extinct mammal and bird species. Studi per l'Ecologia del Quaternario, 12: 133–146.

- Masseti M (1995) Quaternary biogeography of the Mustelidae family on the Mediterranean islands. *Hystrix*, (N.S.) 7 (1–2): 17–34.
- Masseti M (2000a) Wild cats (Mammalia, Carnivora) of Anatolia. With some observations on the former and present occurrence of leopards in south-eastern Turkey and on the Greek island of Samos. *Biogeographia*: 20: 607–618.
- Masseti M (2000b) Note on a Near-Eastern relic population of roe deer, *Capreolus capreolus* (L., 1758) (Mammalia, Artodactyla). *Biogeographia*, 20: 619–623.
- Masseti M (2001) A lost collection of bird and mammals from Northern Syria (1989–1994). 13th International Conference of the Society for the History of Natural History “Lost, stolen and strayed. The fate of missing natural history collections”. 10–11 Maggio 2001. Naturalis, The National Museum of Natural History, Leiden (Olanda). Abstract book: 22.
- Masseti M (2002a) Uomini e (non solo) topi. Gli animali domestici e la fauna antropocora. Firenze University Press/Università di Firenze, Firenze: 337 pp.
- Masseti M (2002b) The non-flying terrestrial mammals of the Dodecanese islands. In: Masseti M. (Ed): Island of deer. Natural history of the fallow deer of Rhodes and of the vertebrates of the Dodecanese (Greece). Environment Organisation of the City of Rhodes, Rhodes: 89–98.
- Masseti M (2004) Artiodactyls of Syria. *Zoology in the Middle East*, 33: 139–148.
- Masseti M, Covarelli A (1991) Presence and distribution of *Hyaena hyaena* L., 1758, in Jordan, with particular reference to its occurrence in the southern desert. *Studi per l'Ecologia del Quaternario*, 13: 163–170.
- Mazak V (1979) Der Tiger, *Panthera tigris*. Neue Brehm-Bücherei, Wittenberg-Lutherstadt, 356: 1–228,
- Mendelssohn H (1989) Felids in Israel. *Cat News*, 10: 2–4.
- Mendelssohn H, Yom Tov Y (1999) Mammalia of Israel. Fauna Palaestina. The Israel Academy of Sciences and Humanities, Jerusalem: 440 pp.
- Misonne X (1957) Mammifères de la Turquie sud-orientale et du nord de la Syrie. *Mammalia*, 21: 53–67.
- Misonne X (1959) Analyse zoogéographique des mammifères de l'Iran. *Mémoires de l'Institut royal des Sciences naturelles de Belgique*, (2) 59: 1–157.
- Mouterde P (1966) Nouvelle flore du Liban et de la Syrie. Editions de l'imprimerie catholique Beyrouth - Liban T I, II, III.
- Niethammer G, Niethammer J (1967) Zur Variabilität der Kehldzeichnung beim Steinmarder, *Martes foina* (Erxleben, 1777). *Z. Säugetierk.*, 32: 185–187.
- Oriani A (2000) Le linci del Caucaso e dell'Asia Occidentale. *Atti Soc. it. Sci. nat. Museo civ. Stor. nat. Milano*, 141/2000 (I): 51–64.
- Osborn DJ, Helmy I (1980) The contemporary land mammals of Egypt (including Sinai). *Feldiana Zoology*, 5: 1–579.
- Özkurt Ş, Sözen M, Yiğit N, Çolak E (1998) Notes on Distributional Records and Some Characteristics of Five Carnivore Species (Mammalia: Carnivora) in Turkey. *Turkish Journal of Zoology*, 22: 285–288.
- Özkurt Ş, Sözen M, Yiğit N, Çolak E (1999) A Study on *Vormela peregusna* Guldenstaedt, 1770 (Mammalia: Carnivora) in Turkey. *Turkish Journal of Zoology*, 23: 1415–144.

- Peshev DT, Al-Hosseini K (1989) Karyology and biochemical characteristic of the pole cat (*Vormela peregusna syriaca* Pocock) (Carnivora: Mustelidae) from Syria. *Acta Zoologica Bulgarica*, 38: 54–57.
- Qarqaz MA, Abu Baker MA, Amr ZS (2004) Status and ecology of the Striped Hyaena, *Hyaena hyaena*, in Jordan. *Zoology in the Middle East*, 33: 87–92.
- Qumsiyeh MB, Amr ZS, Shafei D (1993) The status and conservation of carnivores in Jordan. *Mammalia*, 57 (1): 55–62.
- Ragni B, Masseti M, Roussos T, Belardinelli A, Cicconi P (1999) The carnivores of the island of Crete, Greece). *Contributions to the Zoogeography and Ecology of the Eastern Mediterranean Region*, 1: 117–123.
- Reuter C, Rifai L, Qarqaz M, Abu Baker M, Amr Z (2000) Results of an initial field survey for otters (*Lutra lutra*) in Jordan. *IUCN Otter Specialist Group Bulletin*, 17 (2): 75–79.
- Rifai L, Al-Shafee DM, Al-Melhim WN, Amr ZS (1999) Status of the Marbled Polecat, *Vormela peregusna* (Güldenstaedt, 1770), in Jordan. *Zoology in the Middle East*, 17: 5–8.
- Serhal A (1985) Wild mammals of Lebanon. Rihani House Est, Beirut: 148 pp.
- Serra G, Williamson D, Batello C (2003) From indifference to awareness. Encountering biodiversity in the semi-arid rangelands of the Syrian Arab Republic. *FAO Inter-Departmental Working Group on Biological Diversity for Food and Agriculture*, Rome: 47 pp.
- Serra G, Scheisch Abdallah M, Al Qaim G (2007) Occurrence of Ruppell's Fox, *Vulpes ruppelli*, and Sand Cat, *Felis margarita*, in Syria. *Zoology in the Middle East*, 42: 99–101.
- Serra G, Al Qaim G, Abdallah M, Kanani A, Assaad A (2005) A long-term bird survey of central Syrian desert (2000–2003). Part 2. Sandgrouse, 27 (2): 104–125.
- Shalmon B (2004) Mammals. In: Dolev A, Perevolotsky A (Eds): *The Red Book of the Vertebrates in Israel*. The Israel Nature and Parks Authority and the Society for the Protection of Nature in Israel, Jerusalem: 211–289.
- Simon N (1966) *Red Data Book*. Vol. 1. *Mammalia: a compilation*. IUCN, Morges, Switzerland: 526 pp.
- Talbot LMA (1960) A look at threatened species. A report on some animals of the Middle East and southern Asia which are threatened with extermination. *Oryx*, 5: 153.
- Thol-Schmitz H (2004) Status of the Eurasian Otter, *Lutra lutra*, in Turkey, and experiences with establishing a National Otter Data Base. *Zoology in the Middle East*, 33: 109–118.
- Uhrin M, Benda P, Andreas M (2000) Správa o výskyte vydry riečnej (*Lutra lutra*) v Sýrii (Report on the occurrence of the Eurasian otter, *Lutra lutra*, in Syria). *Výdra*, 9–10: 53–54.
- Ulrich B, Riffel M (1993) New evidence for the occurrence of the Anatolian leopard *Panthera pardus tulliana* (Valenciennes, 1956) in Western Turkey. *Zoology in the Middle East*, 8: 5–14.
- Vallino FO, Guazzo Albergoni F (1978) *Dalla foresta al deserto. Degradazione millenaria di un paesaggio mediterraneo*. Sugar Co Edizioni, Milano: 228 pp.:
- Wozencraft W (2005) Order Carnivora. In: Wilson DE, Reeder DM (Eds) *Mammal Species of the World. A Taxonomic and Geographic Reference*. Third Edition. Volume 1. The John Hopkins University Press, Baltimore: 532–628.
- Yener KA, Wilkinson TJ (2007) *The Amuq Valley Project. 1995–96 Annual Report*. The Oriental Institute of the University of Chicago, Chicago: 548 pp.